

Mean Profiles of the NEO Personality Inventory

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Abstract

The Revised NEO Personality Inventory (NEO-PI-R) and its latest version, the NEO-PI-3, were designed to measure 30 distinctive personality traits, which are grouped into Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness domains. The mean self-rated NEO-PI-R scores for 30 subscales have been reported for 36 countries or cultures in 2002. As a follow-up, this study reports the mean scores of the NEO-PI-R/3 for 71,870 participants from 76 samples and 62 different countries or cultures and 37 different languages. Mean differences in personality traits across countries and cultures were about 8.5 times smaller than differences between any two individuals randomly selected from these samples. Nevertheless, a multidimensional scaling of similarities and differences in the mean profile shape showed a clear clustering into distinctive groups of countries or cultures. This study provides further evidence that country/culture mean scores in personality are replicable and can provide reliable information about personality dispositions.

Keywords

Personality, five-factor model, cross-cultural research, traits, country mean scores, NEO-PI-R, NEO-PI-3

Introduction

The Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992) was designed to measure 30 distinctive personality traits which are grouped into the so-called Big Five independent dimensions of Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. A slightly revised version, the NEO-PI-3, was developed to improve

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readability of the items (McCrae, Costa, & Martin, 2005). Because the NEO-PI-R/3 is one of the most widely used and comprehensive instruments for measuring the Five Factor Model (FFM) of personality, it has been translated into many different languages by enthusiastic colleagues (McCrae & Allik, 2002). As the pattern of covariation between the 30 traits has transcended languages and cultures, there is a good reason to suggest that these five factors of personality may be a human universal (Allik, Realo, & McCrae, 2013; McCrae & Costa, 1997).

Mean self-rated NEO-PI-R scores were initially reported for 26 countries, territories, or cultural groups (McCrae, 2001) and subsequently for 36 countries (McCrae, 2002, Appendix 1). Although the mean self-report NEO-PI-R scores for Conscientiousness are already available for 42 countries/cultures (Möttus, Allik, & Realo, 2010), there has been no update for all traits since 2002. For various reasons, collecting NEO-PI-R/3 observer ratings has been both more systematic and prolific than accumulating self-reports across different countries and cultures. For instance, the members of the *Personality Profiles of Cultures Project* collected data from 11,985 participants from 50 countries/territories who each rated an adult or college-aged man or woman whom they knew well using the NEO-PI-R (McCrae, Terracciano, & 79 Members of the Personality Profiles of Cultures Project, 2005). Following the same study plan, Allik and colleagues (2009) had 7,065 participants from 33 administrative areas of the Russian Federation rate an ethnically Russian adult or college-aged man or woman whom they knew well using the Russian observer-rating version of the NEO-PI-3. For the study of personality in early adolescence, De Fruyt et al. (2009) had 5,109 participants of the *Adolescent Personality Profiles of Culture Project* in 24 different cultures rating adolescents aged 12 to 17 years. Compared with these coordinated efforts, the accumulation of self-report NEO-PI-R/3 data has been more sporadic. Nevertheless, available data from 29 cultures where both self- and observer-reports were collected suggested that the mean profiles from internal and external perspectives are very similar (McCrae, Terracciano, & 79 Members of the Personality Profiles of Cultures Project, 2005) although there is a small but a cross-culturally replicable pattern of differences between these two perspectives (Allik et al., 2010; McCrae, Terracciano, & 79 Members of the Personality Profiles of Cultures Project, 2005).

With a sufficiently large number of countries or cultures, it became possible, for the first time, to examine the worldwide distribution of personality profiles (Allik & McCrae, 2004). Although 36 countries or cultures was a relatively small number and continents were represented unevenly, Allik and McCrae (2004) noted that geographically or culturally proximate samples often had similar personality profiles, and there was a clear contrast between different world areas (Allik & McCrae, 2004). These regularities in the worldwide distribution of personality traits were confirmed and extended by other studies, which used alternative measures of the FFM (Rentfrow, 2014; Rentfrow, Gosling, & Potter, 2008; Schmitt et al., 2007). There is something fascinating in geography; both laypersons and scientists take an interest in rankings of countries on all possible grounds, ranging, for example, from personal savings (Hirsh, 2015) to happiness (Helliwell, Layard, & Sachs, 2015). These rankings, however, make sense only if the aggregate scores represent an accurate statistical summary of how much people managed to save from their incomes and how trustworthy are their self-reported happiness scores. For example, if we talk about self-reported information, then people may see themselves differently from how they are perceived by others, leading to inaccurate descriptions (Allik et al., 2010; Vazire, 2010). Despite these concerns, the 36 country/culture means reported by McCrae (2002) have been used in a large number of studies from which only a small fraction can be named here (e.g., Bartram, 2013; Church, 2016; Gelade, 2013; Hofstede & McCrae, 2004; McCrae, Terracciano, & 79 Members of the Personality Profiles of Cultures Project, 2005; Meisenberg, 2015; Möttus et al., 2010; Schmitt et al., 2007). The range of topics for which these aggregate scores have been used is rather impressive, including happiness (P. Steel & Ones, 2002), innovation (G. D. Steel, Rinne, & Fairweather, 2012), corruption (Connelly & Ones, 2008), spread of pathogens (Schaller &

Murray, 2008), and national intelligence (Dunkel, Stolarski, van der Linden, & Fernandes, 2014). Thus, the NEO-PI-R mean scores have already played a prominent role in testing theories and addressing various problems.

Although deriving the NEO-PI-R mean scores for 36 countries/cultures represented a significant progress, this was still a desperately small number of countries/cultures. This has inhibited validation of these scores with other culture-level variables. For example, when Heine and colleagues tried to find a link between pace of life and personality dispositions in different places (Heine, Buchtel, & Norenzayan, 2008), they could only identify a small number of countries for which both pace of life and trait scores were available. In a well-known article, Levine and Norenzayan (1999) compared the pace of life in large cities from 31 countries around the world. They measured average walking speed in downtown locations, the speed with which postal clerks completed a simple request (work speed), and the accuracy of public clocks. Unfortunately, there were only 10 countries out of these 31 for which the NEO-PI-R self-ratings were also available (Heine et al., 2008). This is an obvious reason why it is desirable to enlarge the number and scope of countries for which NEO-PI-R/3 mean scores are available.

One additional obstacle to progress has been the discovery that country rankings on aggregate personality traits sometimes looked implausible. For instance, counter intuitively, Mõttus, Allik, Realo, Pullmann, et al. (2012) found that rankings on Conscientiousness suggested that the most disciplined and methodical people live in Benin and Burkina Faso, whereas the most lackadaisical and easygoing people live in Japan and Korea. To take another example, even cultural experts were perplexed by the fact that people living in Norway, Sweden, and Denmark average very high on E6: Positive Emotions—a subscale of Extraversion in the NEO-PI-R/3—while people in Hong Kong, Portugal, and Italy average among the lowest countries on this personality trait (McCrae, 2001, 2004; McCrae & Terracciano, 2008). These and other puzzling rankings led some researchers to question the trustworthiness of national mean scores in general (Heine et al., 2008; Heine, Lehman, Peng, & Greenholtz, 2002; Perugini & Richetin, 2007). Although the frame-of-reference explanation—the tendency for people to respond to subjective self-report items by comparing themselves with implicit standards from their culture—found a little support when it was tested directly (Mõttus, Allik, Realo, Rossier, et al., 2012), there are more fundamental reasons why accurate ranking of countries on all personality traits is difficult to establish. One reason out of many potential ones is that all cultural or national differences in personality are small relative to individual variation within each culture or nation. Indeed, a preliminary observation indicated that the standard deviation of personality trait scores at the country (aggregate) level is about 3 times smaller than the standard deviation of individual-level scores within countries or cultural groups (Allik, 2005). This means that, on average, cultural or national differences are approximately 9 times smaller than individual differences on the same traits within these cultures or nations. One obvious implication of this result is that the sample sizes used in these studies may be too small for reliable ranking of countries or territories (Allik & Realo, 2016).

In this article, we have several goals. First, we will extend the initial list of 36 countries/territories or cultural groups (McCrae, 2002) for which mean self-rated NEO-PI-R/3 scores are available. Many researchers are interested in the use of national mean scores of the NEO-PI-R/3 for examining various theories about the relationship between culture and personality. However, the credibility of these explanations rests on the completeness of personality data, which should be accurate and representative of most of the world. Second, we are particularly interested in replication of the mean scores in two or more independent samples, which is one of the main criteria for the trustworthiness of the data.

Finally, one of our goals is to examine the relation between country-level variance and individual-level variance within each country or culture group. If the variance between countries is small in relation to the variance between individuals within country, then it means that

establishing accurate ranking of countries on aggregate personality scores is a difficult task, and may require larger samples than usually used.

Method

Samples

We started with the 36 NEO-PI-R self-rated mean profiles, expressed in *T*-scores, reported in McCrae's paper (McCrae, 2002, Table 1). The original list included the mean scores from Australians, Belgians (Flemish), Black South Africans, Canadians, Chinese, Czechs, Danes, Estonians, Filipinos, French, Germans, Hispanic Americans, Dutch, Hong Kong Chinese, Hungarians, Indonesians, Italians, Japanese, Koreans, Malaysians, Marathi Indians, Norwegians, Peruvians, Portuguese, Russians, Serbians, Zimbabweans, Spaniards, Swedes, Swiss Germans, Telugu Indians, Turks, Americans, and White South Africans samples (McCrae, 2002, Table 1). Information on these samples is reproduced in its original form in the first section of our Table 1. Normative NEO-PI-R data for the USA (1992) served as a reference for other samples, which is why all their *T*-scores are equal to 50. The Hispanic American sample was quite small ($N = 73$) and was omitted. Although Korea and Norway were each represented by two translations and samples, they were combined (McCrae, 2002, Appendix 1). Similarly, German data were separately available for Eastern and Western parts (Angleitner & Ostendorf, 2000), but due to the absence of substantial differences, combined scores were presented. After these omissions and merges, there were data for 24,121 participants from 36 countries/cultures (including USA norms).

The second section of Table 1 shows data from countries/cultures, which are new entries. These data were obtained either from published sources or from individuals who kindly sent their data. For instance, Jerome Rossier and his colleagues collected new entries from several French-speaking African countries: Benin, Burkina Faso, Congo, Democratic Republic of Congo, Mali, Mauritius, Senegal, and Tunisia (Zecca et al., 2013). We also searched the *Web of Science*, *PsycINFO*, *Google Scholar*, and other databases. New translations of the NEO-PI-R/3 became available for several languages: Basque (Gorostiaga, Balluerka, Alonso-Arbiol, & Haranburu, 2011), Bulgarian (Costa & McCrae, 2007), Greek (Fountoulakis et al., 2014), Icelandic (Jonsson & Bergthorsson, 2004), Latvian (Van Skotere & Perepjolkina, 2011), Lithuanian (Žukauskiene & Barkauskiene, 2006), Romanian (Ispas, Iliescu, Ilie, & Johnson, 2014), and Tigrigna (or Tigrinya; Bahta & Laher, 2013). Although an earlier version of NEO-PI was translated into Finnish (Pulver, Allik, Pulkkinen, & Hämäläinen, 1995), data for Finnish version of the NEO-PI-R were collected for a more recent project (Lönnqvist, Paunonen, Tuulio-Henriksson, Lönnqvist, & Verkasalo, 2007), which mean values were provided by Jan-Erik Lönnqvist. In several cases, the mean scores were not reproduced in the published papers but the authors of these papers kindly sent them to us on our requests. Repeated translations appeared for Swedish (Källmen, Wennberg, Andreasson, & Bergman, 2016; Källmen, Wennberg, & Bergman, 2011), Norwegian (Martinsen, Nordvik, & Eriksen Østbø, 2011), and Spanish (Sanz & García-Vera, 2009) versions of the NEO-PI-R. The Italian version of the NEO-PI-R was administered to a large, founder population sample ($N = 5,669$) from the Ogliastra, an isolated region within Sardinia, Italy (Costa et al., 2007).

In addition, some authors of this paper provided new unpublished data. For example, NEO-PI-R/3 data have been added for Mexico (Church et al., 2011; Ortiz et al., 2007). In Czechia and Estonia, the authors initially collected new NEO-PI-R data and more recently NEO-PI-3 self-report data, enabling us to observe how much the new version replicate the previous one.

Because 1992 norms for the United States were used to compute *T*-scores, we decided to use the Baltimore Longitudinal Study of Aging, where the age of 1,994 participants ranges from 20

Table 1. Characteristics of the Samples.

Code	Country/territory/culture	Language	<i>n</i>	Source/reference
McCrae (2002, Table 1)				
AUT	Austria	German	536	F. Ostendorf
BEL	Belgium	Flemish	1,119	F. De Fruyt
CAN	Canada	English	848	K. Jang
CHN	China	Chinese	201	Yang et al. (1999)
CRO	Croatia	Croatian	722	Marusic et al. (1997)
CZE	Czech Republic	Czech	570	M. Hřebíčková
DNK	Denmark	Danish	1,213	E. L. Mortensen
EST	Estonia	Estonian	1,037	J. Allik
FRA	France	French	1,066	Rolland (1998)
DEU	Germany	German	3,730	F. Ostendorf
HKG	Hong Kong	Chinese	122	McCrae, Yik et al. (1998)
HUN	Hungary	Hungarian	312	Z. Szirmak
IDN	Indonesia	Indonesian	181	L. Halim
ITA	Italy	Italian	67	G. V. Caprara
JPN	Japan	Japanese	681	Shimonaka et al. (1999)
KOR	South Korea	Korean	2,353	Lee (1995)
KOR	South Korea	Korean	593	R. L. Piedmont
MYS	Malaysia	Malay	451	Mastor et al. (2000)
IND(M)	India	Marathi	214	Lodhi et al. (2002)
NLD	The Netherlands	Dutch	1,305	Hoekstra et al. (1996)
NOR	Norway	Norwegian	92	H. Nordvik
NOR	Norway	Norwegian	358	Ø. Martinsen
PER	Peru	Spanish	439	Cassaretto (1999)
PHL(E)	Philippines	English	388	A. T. Church
PHL(F)	Philippines	Filipino	509	G. del Pilar
PRT	Portugal	Portuguese	458	M. P. de Lima
RUS	Russia	Russian	117	T. Martin
ZAF(B)	S. Africa–Black	English	65	W. Parker
ZAF(W)	S. Africa–White	English	209	W. Parker
SRB	Yugoslavia	Serbian	619	G. Knežević
ESP	Spain	Spanish	196	M. Avia
SWE	Sweden	Swedish	720	H. Bergman
CHE(G)	Switzerland	German	107	F. Ostendorf
TWN	Taiwan	Chinese	544	Chen (1996)
IND(T)	India	Telugu	259	V. S. Pramila
TUR	Turkey	Turkish	260	S. Gülgöz (2002)
USA	The United States	English	1,389	Costa and McCrae (1992)
USA ^a	The United States	Spanish	73	PAR (1994)
ZWE	Zimbabwe	Shona	71	R. L. Piedmont
New entries				
DZA	Algeria	French	203	Zecca et al. (2013)
AUS2	Australia	English	338	PAR (2008)
ESP(B)	Basque (Spain)	Basque	1,790	Gorostiaga, Balluerka, Alonso-Arbiol, and Haranburu (2011)
BEN	Benin	French	210	Zecca et al. (2013)
BGR	Bulgaria	Bulgarian	1,000	Costa and McCrae (2007)
BFA	Burkina Faso	French	717	Zecca et al. (2013)
BFA2	Burkina Faso	French	470	Rossier, Dahourou, and McCrae (2005)

(continued)

Table 1. (continued)

Code	Country/territory/culture	Language	<i>n</i>	Source/reference
COG	Congo	French	220	Zecca et al. (2013)
COD	Democratic Republic of the Congo	French	220	Zecca et al. (2013)
CZE2	Czechia (NEO-PI-R)	Czech	2,288	M. Hřebíčková
CZE3	Czechia (NEO-PI-3)	Czech	1,639	M. Hřebíčková
ERI	Eritrea	Tigrigna	436	Bahta and Laher (2013)
EST2	Estonia (NEO-PI-R)	Estonian	7,292	A. Realo & J. Allik
EST3	Estonia (NEO-PI-3)	Estonian	3,345	A. Realo & J. Allik
FIN	Finland	Finnish	271	J.-E. Lönnqvist
GRC	Greece	Greek	734	Fountoulakis et al. (2014)
ISL	Iceland	Icelandic	655	Jonsson and Bergthorsson (2004)
IND(E)	India	English	188	Piedmont and Braganza (2015)
ITA(R)	Italy	Italian	690	Costa et al. (2007)
ITA2	Italy	Italian	569	Costa et al. (2007)
LVA	Latvia	Latvian	933	Van Skotere and Perepjolkina (2011)
LTU	Lithuania	Lithuanian	317	Žukauskiene and Barkauskiene (2006)
MLI	Mali	French	240	Zecca et al. (2013)
MUS	Mauritius	French	236	Zecca et al. (2013)
MEX	Mexico	Spanish	775	Church et al. (2011)
RUS(N)	Nenets (Russia)	Russian	80	Draguns, Krylova, Oryol, Rukavishnikov, and Martin, (2000)
NZL	New Zealand	English	284	Black, (2000)
NOR2	Norway	Norwegian	620	Martinsen, Nordvik, and Eriksen Østbø (2011)
PHL(F2)	Philippines	Filipino	252	Church et al. (2011)
POL	Poland	Polish	324	Siuta (2007)
ROU	Romania	Romanian	2,200	Ispas, Iliescu, Ilie, and Johnson (2014)
ITA(S)	Sardinia (Italy)	Italian	5,669	Costa et al. (2007)
SEN	Senegal	French	328	Zecca et al. (2013)
ESP2	Spain	Spanish	682	Sanz and García-Vera (2009)
SWE	Sweden	Swedish	676	Källmen, Wennberg, and Bergman (2011)
SWE2	Sweden	Swedish	766	Källmen et al. (2011)
SWE3	Sweden	Swedish	536	Källmen, Wennberg, Andreasson, and Bergman (2016)
CHE(F)	Switzerland	French	1,090	Rossier et al. (2005)
CHE(F2)	Switzerland	French	1,787	Zecca et al. (2013)
TUN	Tunisia	French	240	Zecca et al. (2013)
GBR	The United Kingdom	English	1,150	Lord (2007)
USA(B)	The United States, Baltimore Longitudinal Study of Aging	English	1,944	Terracciano, McCrae, Brant, and Costa (2005, Appendix B)

Note. PAR = Psychological Assessment Resources.

^aOmitted from further analyses.

to 100 years (Terracciano, McCrae, Brant, & Costa, 2005, Appendix B), as a replication study for the United States.

In total, data reported in this article are based on the self-descriptions of 71,870 participants from 76 samples and 62 different countries or cultures and 37 different languages.

Standardization and Equivalence

McCrae (2002) presented mean scale values as *T*-scores: From each raw mean score, the mean value of the scale in the American normative sample (Costa & McCrae, 1992) was subtracted and the obtained difference was divided by the standard deviation. These standard scores were multiplied by 10 and added to 50 to yield *T*-scores. Because of systematic age and sex differences, different norms were used for males and females dependent on their age group. Data of college-age (18-21 years old) respondents were normalized separately from adults over 21. An unweighted average of these four separately standardized scores represented each sample. The same procedure was used to convert the new data for each county/culture to *T*-scores, again using 1992 American NEO-PI-R norms.

NEO-PI-3 data were available from Czechia and Estonia; it is meaningful to include them in these analyses only if the NEO-PI-3 is equivalent to the NEO-PI-R. Eleven of 30 facet scales are unaltered, and thus must be equivalent. McCrae, Costa, & Martin (2005) reported small raw score differences (0.17-1.19 points) between NEO-PI-R and NEO-PI-3 for 14 of the 19 revised scales. De Fruyt and colleagues (2009) compared means across the two version in a multinational study ($N = 5,109$) of observer ratings. The median absolute difference for the 16 facet scales that showed significant effects was $d = .08$. These results suggest that version differences are minor in magnitude and that data from the NEO-PI-R and NEO-PI-3 can be regarded as equivalent for the purpose of comparing mean profiles. Indeed, the correlation between NEO-PI-R and NEO-PI-3 mean scores for Czechia and Estonia was .96 in both the cases indicating that the shape of profiles changed only slightly. However, we retained NEO-PI-R and NEO-PI-3 data as separate samples in subsequent analyses.

Results

Size of Cultural Differences

We started our analysis with the observation that personality differences across countries and cultures are surprisingly small. Out of 2,280 subscale *T*-scores (30 subscales by 76 samples), only 40 (1.75%) were smaller than 40 or larger than 60. This means that in more than 98% of all cases, the differences from the 1992 American norms were smaller than one standard deviation. We also computed the standard deviation of the mean values across all 76 samples. The smallest cross-cultural variation (2.57) of the mean values was on E2: Gregariousness and the largest was on O6: Values (5.53). The average standard deviation across all 30 subscales was 3.46 or about one third of the within-sample standard deviation, which for *T*-scores is equal to 10. This is very close to a previous observation that the standard deviation of personality trait scores at the country (aggregate) level is about 3 times smaller than the standard deviation of individual-level scores within countries or cultural groups (Allik, 2005). It is important to mention that sizes of the standard deviations of the NEO-PI-R/3 subscales are generalizable across countries/cultures (Allik et al., 2010). Thus, it is irrelevant which sample's standard deviation we are talking about. To get the ratio in terms of variances, we need to square the standard deviations. The observed variance between samples were approximately 8.5 times (100:11.8) smaller than variances within each sample. This signifies that differences in personality between countries or cultures are small relative to interindividual variation.

Are there differences in the cross-culture variance across the five factors? We found that the standard deviations of the sample mean values were approximately in the same range from 3.1 for Extraversion to 3.8 for Agreeableness. An ANOVA revealed that differences in variance between the five factors were insignificant: $F(4, 25) = 1.83, p = .135$.

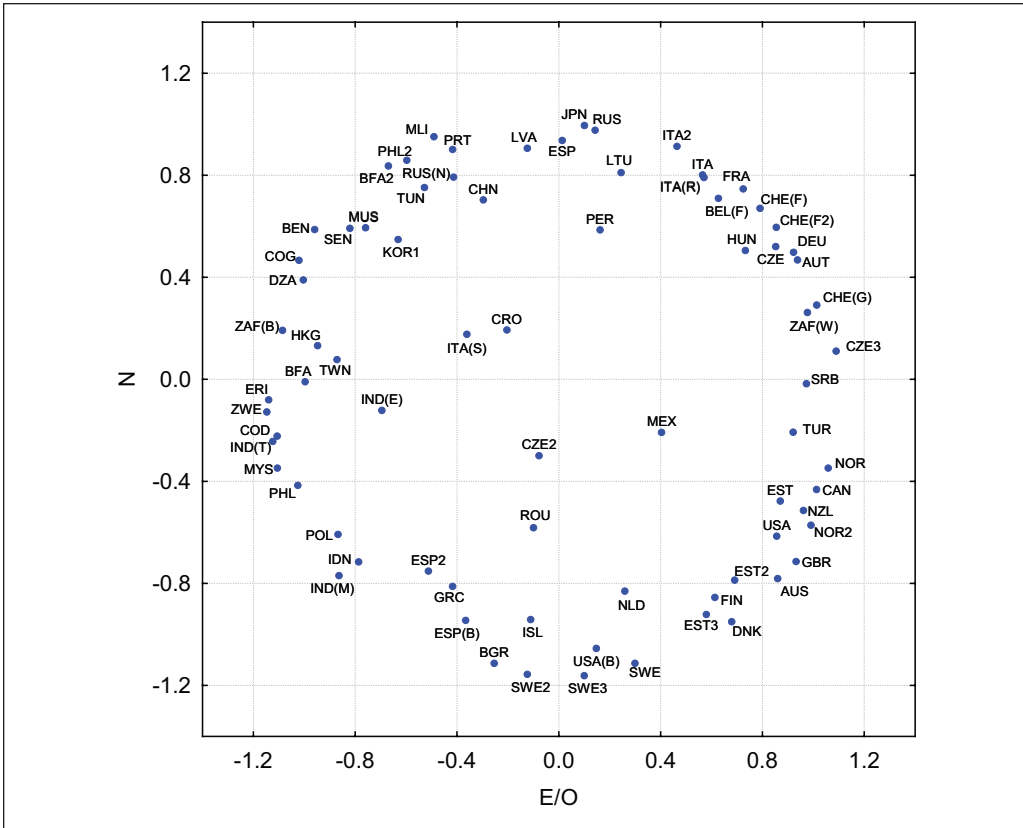


Figure 1. Multidimensional scaling plot of 76 samples.

Geographical Patterning of Personality Profiles

Figure 1 shows the multidimensional scaling plot for the personality profiles reported in the appendix. Labels for the countries are according to three-letter country codes (ISO 3166-1) with suffixes if it is necessary to differentiate various versions or languages. The correspondence between country codes and respective samples is given in Table 1. Before computing similarities between profiles, the data presented in the appendix were normalized one more time. Each mean across all 75 samples was put equal to zero with standard deviation one. To replicate the previous study (Allik & McCrae, 2004), similarities between personality profiles was defined as $1 - \text{Pearson's } r$, where the correlation was computed across normalized scores for all 30 facets. The matrix of similarities was analyzed with a nonmetric multidimensional algorithm which attempts to reproduce the rank-ordering of the input similarities (Guttman, 1968). Although two dimensions were not enough (stress was .23) for representing all similarities between profiles, the first two dimensions still represented the largest portion of variance that could be explained. The configuration of the first two dimensions did not change substantially when additional dimensions were added. The coordinates of the plot were rotated into a position in which the horizontal axis correlated $r = .68$ with the scores of Extraversion (also with Openness $r = .71$) and vertical axis with Neuroticism ($r = .72$). Thus, as a mnemonic, “North” in the figure is associated with N (Neuroticism) and “East” with E (Extraversion) in addition to O (Openness).

To observe how addition of new samples affected coordinates of previous entries (Allik & McCrae, 2004), we compared coordinates of the previous entries (36 – 1) with and without these

41 new samples. The spatial configuration of the previous samples did not change very much after adding 41 new samples because the horizontal and vertical coordinates before and after addition were highly correlated .99. Thus, we are apparently talking about relatively universal coordinates which are able to accommodate all 76 samples.

Previous studies have shown that when individuals are compared based on their genetic similarities, the genetic plot often accurately mirrors the geographic distribution of individuals. For example, the map of Europe can be deduced from genetic similarities of Europeans (Nelis et al., 2009; Novembre et al., 2008). However, it is obviously impossible to reproduce a geographic map of the people's habitat based on similarities between personality profiles alone. Nevertheless, the plot of countries in Figure 1 replicates our previous configuration in many relevant details. As we demonstrated above, the initial samples (Allik & McCrae, 2004) retained their positions on the plot. For example, Croatians and Peruvians still gravitated toward the center of the circle and Americans are very close to Canadians as Germans are to Austrians. Analysis of the initial set of 36 countries/cultures suggested a clear contrast between European cultures (including North-Americans) on one hand, and African and Asian cultures on the other. At large, European cultures tend to score high on Extraversion and Openness (E/O) while African and Asian cultures gravitate toward the opposite pole, Introversion and Closeness. After adding a substantial number of African cultures and some new European cultures to the present analysis, the original distinction was preserved in the new plot, however, with some exceptions. Although Asian and African countries/cultures leaned toward the left hemifield, few European countries such as Poland (POL), Greece (GRC), and the new Spanish version (ESP2) also landed on the left side of the plot.

It is important to remember that similarities/differences shown in Figure 1 are computed based on the distinctive profiles (Allik, Borkenau, Hrebícková, Kuppens, & Realo, 2015; Borkenau & Zaltauskas, 2009; Cronbach, 1955; Furr, 2008). They show how much the mean of each sample is above or below the average score of all 75 samples on each trait. Besides the contrast between European and African Asian countries/cultures, it is possible to notice lesser groupings. For example, all English-speaking countries such as Australia, Canada, Great Britain, and New Zealand are located in the lower right (low N and high E) corner of the plot. Their neighbors are Scandinavian countries—Denmark, Finland, Iceland, Norway, and Sweden. In addition to Anglophonic and Nordic countries, three other countries belong to this cluster. It is perhaps not surprising to discover the Netherlands in the same cluster, but it was unexpected to see Bulgaria and Estonia also close to this group. President Toomas-Hendrik Ilves of Estonia set the goal for his country in his prominent speech at the Swedish Institute of Foreign Affairs on December 14, 1999.¹ He called for Estonia to become a “boring Nordic country.” Although locations of Estonian samples—EST, EST2, and EST3—have changed over time (EST3 data were collected most recently), they are still intermingled with Scandinavian countries. We have no good explanation why Bulgaria is closer to Anglophonic and Scandinavian rather than other Slavonic nations such as Serbia or Croatia. However, it is remarkable that Bulgarian data were collected, unlike many others, from a randomized representative sample.

All German-speaking countries are located in the upper right (high N and high E) quadrant together with Czechs, Hungarians, Italians, and Frenches. Interestingly, all new entries from Africa—Benin, Burkina Faso, Congo, Democratic Republic of Congo, Mali, Mauritius, Senegal, and Tunisia—occupied positions in the high-left (high N and low E) quadrant close to other African countries. Although Tigrigna (ERI) translation had low reliability of some translated scales and the factor structure only vaguely reproduced the original one (Bahta & Laher, 2013), its location was still close to other African personality profiles. Interestingly, like Peru (PER) from the initial set of samples, Mexico (MEX) occupied an intermediate position in the center of

the circle of countries/cultures slightly gravitating toward European and other North American countries.

There were also three waves of data collection for Czechia—CZE, CZE2, and CZE3—which are located close to an area occupied by Germany, Austria, Belgium, Switzerland, and France. The second sample from Norway (NOR2) landed on a position that is not very far from the first sample (NOR). Interestingly, Latvia and Lithuania, two newcomers, landed on the map very close to Russia. Although in the national character stereotypes they oppose themselves to Russians (Realo et al., 2009), their objectively assessed personality traits show very little differences from the average personality traits of Russians. The personality profile of Sardinians—ITA(S)—was closer to the center of the circle than the location of other Italian samples.

Unexpectedly, Poland's position was not in vicinity of its geographic or linguistic neighbors but in the neighborhood of rather distant countries such as Philippines and India. New data from Spain (ESP2; Sanz & García-Vera, 2009) were located in a considerable distance from the position of the previous Spanish version, much closer to the position which is occupied by the Basque version of the NEO-PI-R (Gorostiaga et al., 2011). As a matter of fact, the distance between the first (ESP) and the second (ESP2) Spanish samples is one of the largest among all possible distances in the plot. How to explain disparity between these two versions? The authors of the new Spanish adaptation of the NEO-PI-R (Sanz & García-Vera, 2009) maintain that previous commercially available translations were developed in the personnel selection context. Unlike previous adaptations, this new one recruited volunteers from the Spanish general population who expectedly scored significantly higher on Neuroticism and lower on Conscientiousness subscales than previous participants who were possibly influenced by socially desirable responding (Sanz & García-Vera, 2009, Table 4). If sampling can explain significant disparity in locations of these two adaptations, then it serves as an illustration of how small, procedural differences are more substantial than cross-cultural differences themselves.

Discussion

When McCrae, Terracciano and 79 Members of the Personality Profiles of Cultures Project (2005) represented other-rated NEO-PI-R profiles across the 51 cultures on a two-dimensional plot of similarities-dissimilarities of the profile's shape (see Figure 2 in that study), the observed configuration resembled in general those reported by Allik and McCrae (2004, Figure 2) for self-ratings across 36 cultures. The horizontal (Extraversion) coordinates of 26 overlapping countries/cultures were strongly related ($r = .69, p < .001$), but the vertical (Neuroticism) coordinates did not reach statistical significance. In part, this appears to be due to the shift of the three German-speaking cultures from the top of the self-report plot to the bottom of the observer-rating plot (McCrae, Terracciano, & 79 Members of the Personality Profiles of Cultures Project, 2005). It is not clear why German-speaking people would perceive themselves as higher in N than they perceive their compatriots. Studies have shown that the other-perspective is only slightly different from the self-perspective and if these differences exist, they are universal (cf. Allik et al., 2010). However, this study confirmed that after addition of some new countries/cultures, German-speaking participants still stand higher on N than, for example, English-speaking cultures.

It is generally agreed that the world's happiest people live in Denmark, Switzerland, and Iceland (Helliwell, Layard, & Sachs, 2016). How do we know this? Because, among other things, a large number of people in a variety of countries were approached and asked to answer questions such as, "How happy are you?" After that, answers were aggregated and the mean value across these answers was computed for each country. It is generally believed that these country averages represent more or less accurately how happy people are in their respective countries. Analogously we can determine religiousness of people by asking, "How important is God in your life?" Once

again, we expect that mean scores of these answers represent average religiousness of each country or cultural group reasonably well.

Personality questionnaires such as the NEO-PI-R/3 ask likewise about people's feelings, thoughts, habits, and values. When all personality ratings are aggregated, the country mean scores on personality traits are found. Unlike measures of happiness and religiousness, as stated above, personality averages are often treated with suspicion (Heine et al., 2008; Meisenberg, 2015; Perugini & Richetin, 2007). Indeed, some country rankings on personality traits look very puzzling (Allik & Realo, 2016) and they correlate with some external variables in a paradoxical manner (Heine et al., 2008; Möttus et al., 2010). Perhaps personality questionnaires have limited reliability and validity when used at the level of country averages (Meisenberg, 2015), this new analysis of NEO-PI-R/3 aggregate scores provides another explanation. Cross-country and cross-cultural differences in personality are very small compared with within-sample differences. Differences in personality between aggregate personality scores of countries/cultures are about 8 times smaller than differences between any two individuals randomly selected from the same sample. Because differences are small, it is difficult to establish "true" ranking of these countries/cultures on these traits. To establish stable rankings considerably larger samples than usual are required. The situation is probably similar to the field of genetics, where genome-wide association studies require much larger sample sizes than previously supposed to achieve adequate statistical power (Hong & Park, 2012).

It could be argued that observed human differences, including those for neo-personality variables, are small in general. However, this view is unsupported because, for example, country-level mean differences in psychometrically measured intelligence and educational attainment are substantial and they share a common positive manifold (Lynn & Vanhanen, 2006; Rindermann, 2007). As another example, the *World Value Survey* (WVS; 2005–2008), which collected answers from 82,992 participants in 57 different countries asked among other questions, "How happy are you?" and "How important is God in your life?" (World Values Survey Association, 2014). Interestingly, differences between countries in their happiness were 7.6 times smaller than the typical interindividual variance of happiness within each sample. It is not very surprising that happiness question behaves like a personality item because positive emotions seem to form a core of one of the basic personality traits—Extraversion (Lucas, Diener, Grob, Suh, & Shao, 2000). In contrast, differences between countries in the perceived importance of God are huge compared with personality traits and happiness. The ratio of country-level variance to the mean within-country variance is only 1.28. This indicates that differences between means of any two randomly selected countries in the importance of God in people's life is practically as large as the difference between any two individuals who are living in the same country. Thus, there could be substantial differences between countries on some constructs—but personality traits are not among them.

The relatively small size of cross-cultural differences in personality may be a nuisance for researchers, who attempt to establish these differences, but it is good news for clinical psychologists and test developers. The development of culture-specific norms for a proper psychological assessment of both normal and psychiatric samples is a laborious task. However, the relatively modest size of cross-cultural differences may imply that personality is indeed universal, and that culture has a relatively small impact on the mean scores. It may be so that a reasonable equivalence of personality scores across cultures can be achieved with less efforts than it was initially thought (Allik, 2005).

Considering all possible sources of error—translation, sampling, response biases, and so on—it is perhaps surprising that despite the overlap, we replicated several features of the original geographic patterning (Allik & McCrae, 2004, Figure 2). New and replication samples landed, in most cases, on positions that could be expected based on the previous studies.

Although a clear contrast of European and American cultures with Asian and African cultures, which was conspicuous in the initial sample of 36 cultures, was more blurred, a general clustering was largely preserved. As was noted above, it seems that Scandinavian and Anglophonic countries (in addition to Dutch and Estonians) occupy territory in the plot, reflecting low Neuroticism but high Extraversion ($-N+E$). If we use Eysenck's rules on how to translate an ancient temperament typology—choleric, melancholic, phlegmatic, and sanguine—into personality trait terminology (Brand, 1997), then we are obliged to conclude that this particular group of countries can be characterized as sanguine. Following the same logic, all German speakers and Turks should be classified, on average, as choleric ($+N+E$) but most African cultures—such as Benin, Congo, and Senegal—are characteristically melancholic ($+N-E$). Although melancholy has been suggested as a national trait of Russians (Allik et al., 2011), they are not located in that quadrant. After these examples, the relevance of Eysenck's typology seems to be problematic, at the country level of analysis at least. Very few researchers, for instance, would consider Germans, Swiss, and Austrians as exemplary choleric. Besides, even experts in cross-cultural psychology were unable to judge the ranking of countries or cultures on objectively measured personality traits (McCrae, 2001). Even the collective wisdom of a large number of lay people is not helpful in this regard because national character stereotypes rarely converge with assessed personality traits (Allik, Alyamkina, & Meshcheryakov, 2015; McCrae, Terracciano, Realo, & Allik, 2007; Realo et al., 2009; Terracciano, Abdel-Khalek, et al., 2005).

Although the personality map (Figure 1) resembles Inglehart–Welzel's cultural map (Inglehart, Basanez, Diez-Medrano, Halman, & Luijkx, 2004; Welzel, 2013) in some details, their similarity is far from certain. For instance, Anglophonic countries tend to group into a single cluster in the cultural map; personality profiles of English-speaking countries do the same. However, what is completely absent in the personality map is the distinction between Protestant and Catholic Europe. Even Baltic countries do not form a coherent group based on their personality profiles. Latvians and Lithuanians locate closer to Russia and Japan while Estonians are more similar to Scandinavian personality profiles. According to the mean personality profiles, it is impossible to differentiate African profiles from Asian ones. There is also no clear borders between Muslim and Buddhist personality profiles. Summarizing, the clustering of personality profiles seems to be unlikely inspired by cultural differences as they are captured in the cultural map produced by Inglehart and Welzel. In any case, it opens, one more time, an intriguing question—how are personality and cultural dimensions linked to each other (Hofstede & McCrae, 2004)?

One indicator of the validity of country/culture level mean scores is the correlations found between rankings of samples on the principal axes of N and E/O and various socioeconomic indices (GDP, Human Development Index, Gini index) or, as we already said above, cultural (Hofstede's or Inglehart–Welzel value dimensions) variables (Allik & McCrae, 2004, Table 2). For example, the ranking of 36 countries on the horizontal (E) axis was strongly correlated with their ranking on Hofstede's individualism dimension and the Human Development Index while the ranking on the vertical (N) axis was correlated with Hofstede's uncertainty avoidance ranking (Allik & McCrae, 2004, Table 2). These correlations suggest that personality profiles and cultural dimensions may be related to each other (Allik & McCrae, 2004). However, we deliberately abstained from testing how socioeconomic or cultural variables are related to the extended set of profiles and their two-dimensional representation in the present analysis. All mean values of 30 NEO-PI-R/3 subscales for 62 countries/cultures and 37 languages are now available in the appendix and interested colleagues can use these data for testing their own theories.

Appendix

The Mean Normalized NEO-PI-R/3 Scores for 76 Samples.

CODE	NI	N2	N3	N4	N5	N6	E1	E2	E3	E4	E5	E6	O1	O2	O3	O4	O5	A1	A2	A3	A4	A5	A6	C1	C2	C3	C4	C5	C6	N	E	O	A	C
AUT	52.5	51.6	50.7	51.8	50.7	53.4	48.9	52.2	48.5	49.2	44.1	53.0	58.1	58.0	55.8	54.1	54.0	46.0	43.0	45.6	46.3	46.4	53.8	47.2	47.4	46.7	49.4	43.7	47.6	52.9	48.4	59.1	48.2	46.7
BEL(F)	52.4	50.6	54.9	50.8	51.0	53.0	43.3	52.7	46.7	48.8	47.9	50.5	52.8	52.8	50.2	49.3	48.6	47.7	48.9	44.7	46.4	53.6	53.8	43.8	47.2	48.7	48.5	46.1	49.1	53.0	47.7	51.8	50.0	46.6
CAN	50.4	49.4	50.5	50.8	50.7	48.9	49.8	50.4	50.2	49.7	51.3	53.5	52.0	51.6	51.9	49.5	50.4	51.6	52.4	53.7	50.1	48.9	52.5	50.7	49.3	49.8	47.5	48.3	50.8	50.5	51.7	51.6	51.9	49.2
CHN	49.7	54.1	54.0	54.9	47.2	56.3	45.7	53.2	46.4	49.3	46.8	45.3	45.8	53.6	44.7	43.1	47.6	50.0	48.4	41.7	40.9	47.2	54.2	44.0	47.7	50.5	49.7	47.2	57.2	53.1	44.5	48.3	47.8	50.3
CRO	50.5	52.2	52.1	51.8	46.7	50.5	43.0	49.6	45.3	51.7	44.7	48.0	48.9	53.2	47.7	44.5	49.7	45.5	46.2	47.6	47.0	48.5	50.6	47.6	50.2	51.5	54.6	48.5	51.8	52.8	45.1	49.0	47.5	53.2
CZE	51.1	51.3	51.9	49.0	52.0	59.9	50.5	48.3	47.9	47.8	42.4	52.3	52.4	52.0	51.6	53.7	49.8	41.0	51.7	48.3	48.1	51.0	50.1	40.3	47.7	50.1	49.7	45.2	49.8	54.2	47.4	52.3	50.7	47.5
DNK	46.4	44.9	49.2	48.4	49.8	47.6	49.5	55.9	48.0	56.8	47.1	52.2	47.6	46.8	47.4	51.5	54.2	52.7	48.6	50.6	51.2	51.5	48.2	48.7	50.6	48.5	49.4	48.5	46.5	52.8	46.5	52.0	47.5	47.5
EST	49.0	45.7	49.9	48.7	50.1	44.8	49.1	48.0	51.5	52.0	50.3	51.3	54.4	53.4	53.9	49.3	50.1	52.1	46.8	45.0	46.9	55.3	56.6	44.6	50.3	52.4	50.2	49.6	50.6	49.7	49.9	52.6	50.8	49.6
FRA	55.1	51.2	54.6	52.1	51.9	53.7	48.1	49.2	46.7	50.5	44.5	49.0	54.1	52.7	50.9	53.8	52.7	43.0	50.1	48.9	49.8	55.4	54.2	42.1	48.3	49.2	48.2	44.7	48.0	55.4	47.3	54.1	52.1	47.4
DEU	51.6	50.8	51.3	52.4	50.7	54.1	47.2	51.1	48.4	49.9	41.5	51.4	54.7	56.9	54.3	54.9	50.9	46.2	44.8	44.7	48.1	46.7	54.1	45.3	48.7	46.7	48.2	44.6	47.0	52.8	47.3	56.7	49.1	46.7
HKG	53.1	48.4	52.8	55.2	46.0	59.2	45.0	43.7	43.9	45.5	36.5	40.1	45.6	52.1	43.6	47.0	46.6	48.6	55.4	40.7	57.4	48.1	52.4	40.3	48.6	48.6	48.7	48.7	53.4	53.3	37.6	49.2	54.6	49.2
HUN	49.8	50.6	53.7	51.1	50.4	53.9	46.2	50.2	47.4	51.0	48.6	49.1	53.3	56.4	53.4	48.9	52.6	45.6	47.0	48.4	47.2	49.3	47.0	42.5	51.8	51.2	50.3	45.8	49.5	53.8	47.1	53.7	47.9	50.0
IND(M)	48.9	44.9	49.3	48.1	39.1	47.2	44.7	47.1	43.1	46.8	37.0	50.5	40.8	57.9	47.4	48.9	53.2	54.7	56.7	47.1	54.2	47.7	56.2	47.7	55.5	54.0	55.0	48.8	55.1	49.1	40.7	51.4	56.7	55.7
IND(T)	47.9	50.7	55.2	50.9	40.8	53.8	45.9	50.0	41.8	48.8	48.4	44.4	34.6	54.0	40.9	44.5	50.9	51.6	54.5	47.1	53.9	52.2	60.5	43.8	52.7	52.2	53.6	49.0	56.6	52.3	43.5	44.0	55.9	54.0
IDN	48.3	45.2	49.2	49.1	45.5	52.6	46.6	48.8	46.8	46.6	45.0	47.6	46.5	53.9	45.8	51.2	49.6	52.2	52.1	44.8	52.3	50.7	46.3	42.0	52.1	49.2	54.3	45.9	56.4	48.6	43.3	49.9	51.9	50.3
ITA	55.1	53.8	53.8	50.1	52.4	55.4	47.6	50.8	48.2	52.6	44.3	46.8	54.1	56.4	49.8	49.9	49.2	44.6	52.9	48.1	43.6	49.8	48.9	44.1	45.0	51.3	49.3	48.2	51.9	55.6	46.6	52.6	48.9	50.4
JPN	56.0	52.4	56.7	53.5	52.3	62.6	41.3	47.2	45.3	45.4	44.5	46.0	52.2	52.6	48.4	51.2	49.2	47.9	49.7	35.9	51.2	46.4	44.7	34.9	45.6	43.2	45.9	39.8	48.0	55.3	41.7	51.7	47.7	42.6
KORI	53.1	50.0	54.6	56.7	45.9	57.3	41.3	48.5	46.0	45.6	40.3	43.0	48.4	52.9	46.5	47.3	48.7	51.2	52.1	43.2	50.4	46.7	53.3	42.1	47.6	52.8	47.9	44.9	52.5	53.6	40.0	51.4	52.3	48.8
MYS	52.3	46.4	53.0	57.6	46.0	51.5	45.1	45.9	46.9	45.1	38.6	47.8	42.2	49.3	43.8	52.1	49.9	51.1	54.6	46.5	57.4	53.0	64.6	44.9	56.3	53.2	55.0	44.5	56.9	54.2	42.5	46.6	58.5	54.2
NLD	48.5	45.5	50.9	47.9	48.6	48.2	43.9	49.3	46.9	47.6	40.1	49.3	51.4	54.1	50.5	54.2	51.0	51.5	51.9	45.5	51.5	54.0	57.9	45.6	48.7	52.5	49.6	50.0	51.2	48.6	43.9	55.7	54.6	48.6
NOR	47.3	46.5	49.6	47.7	54.7	47.7	47.5	56.6	50.7	53.1	50.7	54.4	52.9	50.7	50.1	53.2	49.6	51.5	50.1	48.6	48.5	49.7	52.8	47.8	48.2	49.0	48.8	45.8	48.6	47.4	53.6	51.5	49.9	45.7
PER	53.5	47.7	51.5	49.5	48.9	52.8	45.0	48.7	49.6	46.7	45.8	48.7	50.6	52.3	45.4	47.0	49.6	45.5	48.1	45.4	49.6	46.0	51.9	47.8	46.5	49.4	53.1	44.8	50.9	50.8	45.5	50.0	48.6	49.0
PHL	50.4	47.4	51.4	53.4	46.7	51.7	45.8	48.7	49.6	45.7	44.3	48.0	46.0	54.8	46.4	51.5	52.3	49.5	50.4	46.9	54.9	49.7	53.6	47.1	50.7	49.0	52.4	49.4	54.7	50.8	43.8	51.8	52.9	51.5
PRT	56.9	51.0	54.5	52.8	49.8	54.8	47.2	48.8	45.7	47.3	50.0	46.0	49.1	54.0	47.4	51.1	47.6	46.1	47.1	45.6	52.3	52.9	52.9	44.9	50.8	50.2	51.7	46.4	51.4	55.5	46.3	49.2	51.2	50.3
RUS	51.7	51.8	54.1	54.0	49.5	58.6	45.9	48.8	47.6	48.0	46.4	47.2	49.8	53.6	47.4	50.6	46.8	47.0	43.2	41.3	46.9	49.6	46.0	40.6	50.2	46.0	46.8	43.8	50.3	53.7	45.1	49.0	46.7	46.5
SRB	49.7	49.6	48.8	47.1	50.5	49.3	47.6	52.5	46.9	51.2	47.1	49.0	53.5	59.1	54.5	51.2	53.9	47.1	49.5	48.9	46.4	46.0	49.5	46.9	50.3	51.3	54.2	47.7	51.0	51.1	47.6	56.0	48.4	51.7
ZAF(B)	49.0	49.3	53.3	52.4	44.5	50.3	44.7	48.0	46.6	43.6	42.8	46.3	45.0	50.7	42.0	48.2	49.9	44.9	48.4	41.9	54.8	49.9	50.2	44.2	48.9	45.7	48.1	47.0	53.5	49.1	41.4	47.7	50.4	47.9
ZAF(W)	49.1	50.4	53.1	51.6	50.7	49.9	49.2	48.6	48.1	48.8	47.0	49.5	52.4	54.6	53.3	52.7	52.3	47.5	52.7	48.1	51.7	52.3	45.4	46.8	48.5	47.3	47.1	50.1	51.9	47.2	54.4	52.2	47.9	
ESP	58.6	50.1	56.5	54.0	52.0	57.6	43.3	50.6	45.6	50.1	48.3	49.2	52.4	51.1	47.7	44.6	45.4	47.0	43.8	45.8	44.8	53.1	57.2	44.6	48.1	47.8	51.4	44.3	51.8	57.1	48.3	48.0	49.4	48.3
SWE	45.6	45.5	49.8	46.3	47.8	49.6	47.8	54.8	46.9	46.1	45.0	53.4	48.4	45.6	48.4	49.7	43.9	52.9	51.7	52.7	54.6	59.1	48.8	49.8	59.8	52.7	42.7	47.0	54.5	46.3	50.6	46.0	56.5	45.7
CHE(G)	51.0	50.6	50.1	53.1	51.6	53.4	51.1	49.8	52.8	46.2	52.5	57.0	57.3	56.4	55.4	54.8	46.0	44.7	46.5	45.1	46.7	51.5	48.7	50.6	48.6	50.6	45.6	48.7	53.2	48.5	58.9	47.0	49.6	49.6
TWN	51.1	46.4	52.6	53.9	45.4	56.0	46.1	46.5	45.6	43.4	41.4	46.8	46.2	54.7	47.4	47.3	46.2	50.4	51.3	45.4	56.9	45.6	53.1	42.5	47.3	48.9	49.7	45.7	54.4	51.5	42.0	50.2	54.5	48.1
TUR	47.9	50.7	50.9	53.1	49.0	51.6	47.7	52.8	48.8	50.7	50.2	53.1	49.8	53.0	50.5	52.0	47.4	47.2	53.5	51.6	45.5	44.3	48.0	49.5	50.3	50.2	52.0	48.2	51.4	50.9	50.3	50.8	48.5	50.4
USA	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
ZWE	48.5	49.5	53.4	51.2	44.0	53.9	42.4	48.9	46.3	48.4	43.8	48.2	41.5	50.7	41.0	55.2	48.1	44.6	52.0	40.1	54.5	48.7	56.2	40.9	53.1	49.3	55.3	48.1	55.2	50.9	42.3	47.0	51.0	51.8
DZA	54.3	53.9	56.2	54.0	46.7	54.2	44.5	46.2	49.8	47.0	45.3	45.7	51.3	45.6	48.5	50.3	44.6	52.0	40.1	54.5	48.7	56.2	40.9	53.1	49.3	55.3	48.1	55.2	54.2	45.0	45.4	50.7	49.9	49.9
AUS	43.2	42.0	43.9	43.4	47.4	39.3	55.8	54.8	58.2	53.7	52.3	57.3	48.9	49.2	51.1	58.1	54.8	40.6	53.3	50.7	50.6	51.5	56.0	43.1	51.0	49.9	52.7	46.8	53.9	41.0	57.9	54.0	57.0	47.0
ESP(B)	54.0	49.9	51.2	52.6	45.1	55.7	44.9	53.5	46.0	52.4	46.9	50.9	50.9	48.1	47.2	47.8	45.6	54.5	51.7	56.6	51.8	50.4	51.3	57.2	52.7	55.7	56.9	55.7	54.0	51.9	48.8	47.3	52.5	47.4

(continued)

Appendix (continued)

CODE	NI	N2	N3	N4	N5	N6	E1	E2	E3	E4	E5	E6	O1	O2	O3	O4	O5	A1	A2	A3	A4	A5	A6	C1	C2	C3	C4	C5	C6	N	E	O	A	C
BEN	525	526	557	572	449	511	459	523	457	440	496	480	433	549	450	541	522	477	551	462	515	502	597	439	491	491	484	461	513	531	470	478	495	520
BGR	453	422	442	482	383	423	514	545	508	531	435	478	409	543	453	484	494	398	496	462	553	494	595	462	534	494	545	475	570	414	504	466	536	595
BFA	584	562	590	598	482	583	453	505	456	443	487	438	441	539	433	522	517	532	539	538	519	532	473	524	561	593	589	577	579	592	449	478	481	472
BRF	576	550	583	593	474	572	458	505	455	443	484	441	465	532	432	518	521	394	465	455	519	513	596	399	491	466	535	439	529	581	450	476	494	481
COG	509	526	555	542	438	507	463	490	515	458	462	463	441	512	419	521	510	404	476	460	529	520	601	407	499	477	538	447	536	519	467	456	512	529
COD	497	526	534	536	436	499	438	502	509	464	441	439	437	494	390	494	498	420	519	477	548	504	581	470	539	501	557	478	583	509	453	429	474	529
CZEE3	502	489	500	478	512	510	516	481	511	489	422	513	515	506	506	551	507	414	511	460	475	505	495	393	475	481	500	445	488	498	483	522	471	491
CZEE2	513	511	527	495	518	546	499	493	494	482	429	525	519	519	500	538	491	415	500	462	544	463	508	500	535	485	545	482	594	498	481	514	465	453
ERI	471	466	530	538	401	532	411	447	418	409	469	474	389	511	409	465	485	442	500	416	559	542	537	397	548	509	533	446	564	488	409	405	501	502
EST3	510	516	481	511	489	422	513	515	506	506	551	507	510	423	523	502	469	548	447	533	515	489	490	517	533	515	489	490	517	502	489	500	478	512
EST2	477	473	486	488	493	461	493	509	523	507	480	482	465	492	484	448	461	423	523	502	469	488	483	437	509	510	501	482	514	501	478	507	494	497
FIN	484	458	485	499	504	468	471	496	496	521	466	500	520	504	457	543	484	548	502	444	526	472	485	517	527	487	496	498	474	477	488	501	497	500
GRC	533	502	507	502	464	528	454	509	489	513	426	465	454	500	455	477	456	483	437	509	510	501	482	514	536	530	481	489	535	509	466	451	488	515
ISL	476	505	504	508	509	507	479	519	458	510	424	509	479	500	478	465	467	437	515	476	508	488	533	452	531	516	529	501	530	502	476	465	555	489
IND(E)	530	529	558	487	477	557	452	481	474	482	473	485	451	550	469	494	487	521	537	508	579	543	522	440	478	552	499	481	503	533	463	479	466	477
ITA(R)	551	538	538	501	525	554	476	508	482	526	443	469	541	564	498	499	492	446	529	480	436	498	488	441	449	513	493	482	519	555	466	526	489	504
ITA2	558	515	541	502	510	561	460	513	476	507	461	465	553	548	492	507	499	426	479	466	437	488	535	428	460	489	489	479	507	550	469	521	481	487
LVA	543	514	535	527	505	560	444	495	485	489	438	459	505	511	487	470	460	444	498	436	491	461	544	432	493	464	506	486	518	541	456	473	429	465
LTU	512	511	533	521	470	549	449	503	473	502	476	493	502	527	463	467	455	461	450	415	471	451	472	433	511	466	495	452	479	522	475	472	465	462
MLI	536	532	539	554	462	537	469	540	487	479	484	461	430	516	430	502	521	481	479	427	479	483	510	413	489	491	476	449	501	537	483	446	466	515
MUS	539	527	549	518	483	537	462	466	480	508	480	474	472	507	473	483	505	430	465	447	497	481	564	469	497	495	550	485	566	537	468	469	499	492
MEX	506	493	492	480	481	520	449	519	515	483	543	531	514	536	475	464	527	415	524	459	521	513	571	452	507	494	519	471	526	494	512	502	424	503
RUS(N)	534	546	547	586	488	591	427	469	448	495	494	438	489	535	419	481	465	445	437	459	460	430	488	482	471	519	540	473	530	565	423	450	406	456
NZL	469	395	455	472	451	433	544	524	516	526	477	558	436	468	509	558	477	420	393	383	416	490	472	405	524	428	474	453	492	429	536	489	602	553
NOR2	488	447	502	469	529	479	483	540	514	563	459	523	510	534	506	559	489	542	539	492	517	502	504	490	488	490	498	488	477	481	520	533	526	485
PHL2	555	505	543	564	487	546	452	525	501	467	513	490	497	537	519	545	517	446	455	448	520	478	559	469	504	491	556	479	552	546	490	493	472	512
POL	536	501	553	549	467	561	454	487	450	517	417	450	461	498	443	484	465	553	584	567	585	555	545	529	523	562	541	557	540	539	445	447	474	480
ROU	495	499	503	507	446	493	464	500	497	503	442	454	465	506	458	483	492	469	491	433	496	523	475	429	515	496	508	472	480	489	467	467	462	508
ITA(S)	541	507	529	508	476	551	475	531	470	502	461	460	495	508	449	520	450	459	494	442	492	468	496	460	517	503	521	504	522	532	475	465	497	498
SEN	536	509	542	535	445	493	477	483	477	488	444	466	459	521	433	491	544	448	487	469	450	516	534	427	486	500	502	492	535	516	462	476	548	550
ESP2	542	468	517	502	485	514	460	479	484	496	384	496	488	509	461	472	466	498	488	466	506	540	568	469	496	525	488	533	507	451	473	517	507	513
SWE2	447	450	494	456	455	486	466	514	468	474	399	509	459	454	474	488	438	532	538	514	541	570	592	496	513	560	442	503	550	454	459	450	573	513
SWE3	448	445	500	436	439	477	481	509	495	463	402	545	485	446	506	512	481	524	544	554	525	546	567	535	531	574	474	515	552	537	522	507	522	500
CHE(F)	550	508	534	519	519	523	484	474	467	509	438	506	547	530	514	530	505	462	513	480	520	532	556	424	476	498	491	465	478	535	470	536	517	464
CHE(F2)	546	505	535	520	518	524	492	484	470	514	443	515	544	529	516	527	507	462	514	482	518	535	559	423	476	498	491	464	478	534	479	534	523	464
TUN	517	525	541	540	477	538	454	483	475	489	488	478	466	523	453	482	488	466	521	493	520	534	560	430	476	497	493	463	475	531	468	455	480	483
GBR	443	407	430	417	436	387	531	539	589	590	459	544	483	527	524	627	550	395	524	498	482	478	562	428	497	489	537	452	511	394	561	568	540	576
USA(B)	483	487	480	485	489	484	504	506	528	512	481	499	512	535	506	509	518	566	505	533	551	501	500	570	508	568	589	573	539	478	492	533	503	500

Note. N = Neuroticism; E = Extraversion; O = Openness; A = Agreeableness; C = Conscientiousness.

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1. <http://vm.ee/en/news/estonia-nordic-country>

References

- Allik, J. (2005). Personality dimensions across cultures. *Journal of Personality Disorders*, 19, 212-232. doi:10.1521/pedi.2005.19.3.212
- Allik, J., Alyamkina, E., & Meshcheryakov, B. (2015). The personality stereotypes of three cohabiting ethnic groups: Erzians, Mokshans, and Russians. *Cross-Cultural Research*, 49, 111-134. doi:10.1177/1069397114540861
- Allik, J., Borkenau, P., Hřebícková, M., Kuppens, P., & Realo, A. (2015). How are personality trait and profile agreement related. *Frontiers in Psychology*, 6. doi:10.3389/fpsyg.2015.00785
- Allik, J., & McCrae, R. R. (2004). Toward a geography of personality traits: Patterns of profiles across 36 cultures. *Journal of Cross-Cultural Psychology*, 35, 13-28. doi:10.1177/0022022103260382
- Allik, J., & Realo, A. (2016). How valid are culture-level mean personality scores? In A. T. Church (Ed.), *Personality across cultures*. Santa Barbara, CA: Praeger.
- Allik, J., Realo, A., & McCrae, R. R. (2013). Universality of the five-factor model of personality. In P. T. Costa & T. Widiger (Eds.), *Personality disorders and the five factor model of personality* (pp. 61-74). Washington, DC: American Psychological Association.
- Allik, J., Realo, A., Möttus, R., Borkenau, P., Kuppens, P., & Hřebícková, M. (2010). How people see others is different from how people see themselves: A replicable pattern across cultures. *Journal of Personality and Social Psychology*, 94, 168-182. doi:10.1037/a0020963
- Allik, J., Realo, A., Möttus, R., Pullmann, H., Trifonova, A., McCrae, R. R., & 56 Members of the Russian Character and Personality Survey. (2009). Personality traits of Russians from the observer's perspective. *European Journal of Personality*, 23, 567-588. doi:10.1002/per.721
- Allik, J., Realo, A., Möttus, R., Pullmann, H., Trifonova, A., McCrae, R. R., . . . Korneeva, E. E. (2011). Personality profiles and the "Russian Soul": Literary and scholarly views evaluated. *Journal of Cross-Cultural Psychology*, 42, 372-389. doi:10.1177/0022022110362751
- Angleitner, A., & Ostendorf, F. (2000, July 23-28). *The FFM: A comparison of German speaking countries (Austria, former East and West Germany, and Switzerland)*. Contribution to the Symposium "Personality and Culture" at the XXVII International Congress of Psychology, Sweden, Stockholm.
- Bahta, T. T., & Laher, S. (2013). Exploring the reliability and validity of a Tigrignan translation of the NEO-PI-R in an Eritrean sample. *IFE Psychologia*, 21(1), 164-181. Retrieved from <http://search.ebsco-host.com/login.aspx?direct=true&db=a9h&AN=85921018&login.asp&site=ehost-live>
- Bartram, D. (2013). Scalar equivalence of OPQ32: Big Five profiles of 31 countries. *Journal of Cross-Cultural Psychology*, 44, 61-83. doi:10.1177/0022022111430258
- Black, J. (2000). Personality testing and police selection: Utility of the "Big Five." *New Zealand Journal of Psychology*, 29, 2-9.

- Borkenau, P., & Zaltauskas, K. (2009). Effects of self-enhancement on agreement on personality profiles. *European Journal of Personality*, 23, 107-123. doi:10.1002/per.707
- Brand, C. R. (1997). Hans Eysenck's personality dimensions: Their number and nature. In H. Nyborg (Ed.), *The scientific study of human nature: Tribute to Hans J. Eysenck at eighty* (pp. 17-35). New York, NY: Elsevier.
- Church, A. T. (2016). Personality traits across cultures. *Current Opinion in Psychology*, 8, 22-30. doi:10.1016/j.copsyc.2015.09.014
- Church, A. T., Alvarez, J. M., Mai, N. T. Q., French, B. F., Katigbak, M. S., & Ortiz, F. A. (2011). Are cross-cultural comparisons of personality profiles meaningful? Differential item and facet functioning in the Revised NEO Personality Inventory. *Journal of Personality and Social Psychology*, 101, 1068-1089. doi:10.1037/a0025290
- Connelly, B. S., & Ones, D. S. (2008). The personality of corruption: A national-level analysis. *Cross-Cultural Research*, 42, 353-385. doi:10.1177/1069397108321904
- Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T., & McCrae, R. R. (2007). *NEO PI-R: Revised NEO Personality Inventory* (in Bulgarian). Sofia: OS Bulgaria.
- Costa, P. T., Terracciano, A., Uda, M., Vacca, L., Mameli, C., Pilia, G., . . . McCrae, R. R. (2007). Personality traits in Sardinia: Testing founder population effects on trait means and variances. *Behavior Genetics*, 37, 376-387. doi:10.1007/s10519-006-9103-6
- Cronbach, L. J. (1955). Process affecting scores on "understanding others" and "assumed similarity." *Psychological Bulletin*, 52, 177-193.
- De Fruyt, F., De Bolle, M., McCrae, R. R., Terracciano, A., Costa, P. T., & Collaborators of the Adolescent Personality Profiles of Cultures Project. (2009). Assessing the universal structure of personality in early adolescence: The NEO-PI-R and NEO-PI-3 in 24 cultures. *Assessment*, 16, 301-311. doi:10.1177/1073191109333760
- Draguns, J. G., Krylova, A. V., Oryol, V. E., Rukavishnikov, A. A., & Martin, T. A. (2000). Personality characteristics of the Nentsy in the Russian Arctic—A comparison with ethnic Russians by means of NEO-PI-R and POI. *American Behavioral Scientist*, 44, 126-140.
- Dunkel, C. S., Stolarski, M., van der Linden, D., & Fernandes, H. B. F. (2014). A reanalysis of national intelligence and personality: The role of the general factor of personality. *Intelligence*, 47, 188-193. doi:10.1016/j.intell.2014.09.012
- Fountoulakis, K. N., Siamouli, M., Moysidou, S., Pantoula, E., Moutou, K., Panagiotidis, P., . . . McCrae, R. (2014). Standardization of the NEO-PI-3 in the Greek general population. *Annals of General Psychiatry*, 13, Article 36. doi:10.1186/s12991-014-0036-9
- Furr, R. M. (2008). A framework for profile similarity: Integrating similarity, normativeness, and distinctiveness. *Journal of Personality*, 76, 1267-1316. doi:10.1111/j.1467-6494.2008.00521.x
- Gelade, G. A. (2013). Personality and place. *British Journal of Psychology*, 104, 69-82. doi:10.1111/j.2044-8295.2012.02099.x
- Gorostiaga, A., Balluerka, N., Alonso-Arbiol, I., & Haranburu, M. (2011). Validation of the Basque Revised NEO Personality Inventory (NEO PI-R). *European Journal of Psychological Assessment*, 27, 193-205. doi:10.1027/1015-5759/a000067
- Guttman, L. (1968). A general nonmetric technique for finding the smallest coordinate space for a configuration of points. *Psychometrika*, 33, 469-506. doi:10.1007/BF02290164
- Heine, S. J., Buchtel, E. E., & Norenzayan, A. (2008). What do cross-national comparisons of personality traits tell us? The case of conscientiousness. *Psychological Science*, 19, 309-313. doi:10.1111/j.1467-9280.2008.02085.x
- Heine, S. J., Lehman, D. R., Peng, K., & Greenholtz, J. (2002). What's wrong with cross-cultural comparisons of subjective Likert scales: The reference-group problem. *Journal of Personality and Social Psychology*, 82, 903-918. doi:10.1037//0022-3514.82.6.903
- Helliwell, J. F., Layard, R., & Sachs, J. (2015). *World happiness report 2015*. New York, NY: Sustainable Development Solutions Network.
- Helliwell, J. F., Layard, R., & Sachs, J. (2016). *World Happiness Report 2016, update (Vol. 1)*. New York, NY: Sustainable Development Solutions Network.

- Hirsh, J. B. (2015). Extraverted populations have lower savings rates. *Personality and Individual Differences*, 81, 162-168. doi:10.1016/j.paid.2014.08.020
- Hofstede, G., & McCrae, R. R. (2004). Personality and culture revisited: Linking traits and dimensions of culture. *Cross-Cultural Research*, 38, 52-88. doi:10.1177/1069397103259443
- Hong, E. P., & Park, J. W. (2012). Sample size and statistical power calculation in genetic association studies. *Genomics & Informatics*, 10, 117-122. doi:10.5808/GI.2012.10.2.117
- Inglehart, R., Basanez, M., Diez-Medrano, J., Halman, L., & Luijckx, R. (2004). *Human beliefs and values: A cross-cultural sourcebook based on the 1999-2002 values surveys*. Mexico: Siglo XXI Editores.
- Ispas, D., Iliescu, D., Ilie, A., & Johnson, R. E. (2014). Exploring the cross-cultural generalizability of the five-factor model of personality: The Romanian NEO PI-R. *Journal of Cross-Cultural Psychology*, 45, 1074-1088. doi:10.1177/0022022114534769
- Jonsson, F. H., & Bergthorsson, A. (2004). Fyrstu niurstöur úr stölnun NEO-PI-R á Íslandi [First results of the standardization of the NEO-PI-R in Iceland]. *Salfræðiritid*, 9, 9-16.
- Källmen, H., Wennberg, P., Andreasson, P., & Bergman, H. (2016). Psychometric properties of the Swedish version of the personality inventory NEO-PI-3. *International Journal of Psychology on Psychoanalysis*, 2(1), 1-3.
- Källmen, H., Wennberg, P., & Bergman, H. (2011). Psychometric properties and norm data of the Swedish version of the NEO-PI-R. *Nordic Journal of Psychiatry*, 65, 311-314. doi:10.3109/08039488.2010.545433
- Levine, R. V., & Norenzayan, A. (1999). The pace of life in 31 countries. *Journal of Cross-Cultural Psychology*, 30, 178-205. doi:10.1177/0022022199030002003
- Lönnqvist, J. E., Paunonen, S., Tuulio-Henriksson, A., Lönnqvist, J., & Verkasalo, M. (2007). Substance and style in socially desirable responding. *Journal of Personality*, 75, 291-322. doi:10.1111/j.1467-6494.2006.00440.x
- Lord, W. (2007). *NEO PI-R: A guide to interpretation and feedback in a work context*. Oxford, UK: Hogrefe.
- Lucas, R. E., Diener, E., Grob, A., Suh, E. M., & Shao, L. (2000). Cross-cultural evidence for the fundamental features of extraversion. *Journal of Personality and Social Psychology*, 79, 452-468. doi:10.1037/0022-3514.79.3.452
- Lynn, R., & Vanhanen, T. (2006). *IQ and global inequality*. Augusta, GA: Washington Summit Publishers.
- Martinsen, Ø. L., Nordvik, H., & Eriksen Østbø, L. (2011). The NEO PI-R in a North European context. *Scandinavian Journal of Organizational Psychology*, 3(2), 58-75.
- McCrae, R. R. (2001). Trait psychology and culture: Exploring intercultural comparisons. *Journal of Personality*, 69, 819-846. doi:10.1111/1467-6494.696166
- McCrae, R. R. (2002). NEO-PI-R data from 36 cultures: Further intercultural comparisons. In R. R. McCrae & J. Allik (Eds.), *The five-factor model of personality across cultures* (pp. 105-125). New York, NY: Kluwer Academic/Plenum Publishers
- McCrae, R. R. (2004). Human nature and culture: A trait perspective. *Journal of Research in Personality*, 38, 3-14. doi:10.1016/j.jrp.2003.09.009
- McCrae, R. R., & Allik, J. (2002). *The five-factor model of personality across cultures*. New York, NY: Kluwer Academic/Plenum Publishers.
- McCrae, R. R., & Costa, P. T. (1997). Personality trait structure as a human universal. *American Psychologist*, 52, 509-516. doi:10.1037/0003-066X.52.5.509
- McCrae, R. R., Costa, P. T., & Martin, T. A. (2005). The NEO-PI-3: A more readable Revised Neo Personality Inventory. *Journal of Personality Assessment*, 84, 261-270.
- McCrae, R. R., & Terracciano, A. (2008). The five-factor model and its correlates in individuals and cultures. In F. van de Vijver, D. A. van Hemert, & Y. H. Poortinga (Eds.), *Multilevel analysis of individuals and cultures* (pp. 249-283). New York, NY: Lawrence Erlbaum.
- McCrae, R. R., Terracciano, A., & 78 Members of the Personality Profiles of Cultures Project. (2005). Universal features of personality traits from the observer's perspective: Data from 50 cultures. *Journal of Personality and Social Psychology*, 88, 547-561. doi:10.1037/0022-3514.88.3.547
- McCrae, R. R., Terracciano, A., & 79 Members of the Personality Profiles of Cultures Project. (2005). Personality profiles of cultures: Aggregate personality traits. *Journal of Personality and Social Psychology*, 89, 407-425. doi:10.1037/0022-3514.89.3.407.
- McCrae, R. R., Terracciano, A., Realo, A., & Allik, J. (2007). Climatic warmth and national wealth: Some culture-level determinants of national character stereotypes. *European Journal of Personality*, 21, 953-976.

- Meisenberg, G. (2015). Do we have valid country-level measures of personality? *Mankind Quarterly*, 55, 360-382. Retrieved from <http://mankindquarterly.org/archive/paper.php?p=788>
- Möttus, R., Allik, J., & Realo, A. (2010). An attempt to validate national mean scores of conscientiousness: No necessarily paradoxical findings. *Journal of Research in Personality*, 44, 630-640. doi:10.1016/j.jrp.2010.08.005
- Möttus, R., Allik, J., Realo, A., Pullmann, H., Rossier, J., Zecca, G., . . . Tseung, C. N. (2012). Comparability of self-reported conscientiousness across 21 countries. *European Journal of Personality*, 26, 303-317. doi:10.1002/per.840
- Möttus, R., Allik, J., Realo, A., Rossier, J., Zecca, G., Ah-Kion, J., . . . Johnson, W. (2012). The effect of response style on self-reported conscientiousness across 20 countries. *Personality and Social Psychology Bulletin*, 38, 1423-1436. doi:10.1177/0146167212451275
- Nelis, M., Esko, T., Mägi, R., Zimprich, F., Zimprich, A., Toncheva, D., . . . Metspalu, A. (2009). Genetic structure of Europeans: A view from the North-East. *PLoS ONE*, 4(5), e5472. doi:10.1371/journal.pone.0005472
- Novembre, J., Johnson, T., Bryc, K., Kutalik, Z., Boyko, A. R., Auton, A., . . . Bustamante, C. D. (2008). Genes mirror geography within Europe. *Nature*, 456, 98-101. doi:10.1038/nature07331
- Ortiz, F. A., Church, A. T., Vargas-Flores, J. D. J., Ibanez-Reyes, J., Flores-Galaz, M., Iuit-Briceno, J. I., & Escamilla, J. M. (2007). Are indigenous personality dimensions culture-specific? Mexican inventories and the five-factor model. *Journal of Research in Personality*, 41, 618-649. doi:10.1016/j.jrp.2006.07.002
- Perugini, M., & Richetin, J. (2007). In the land of the blind, the one-eyed man is king. *European Journal of Personality*, 21(8), 977-981.
- Piedmont, R. L., & Braganza, D. J. (2015). Psychometric evaluation of responses to the NEO-PI-3 in a multi-ethnic sample of adults in India. *Psychological Assessment*, 27, 1253-1263. doi:10.1037/pas0000135
- Psychological Assessment Resources. (2008). *NEO PI-R™: Supplementary information—Form S for adults: Australian adult data, 2006-2007*. Lutz, FL: PAR Inc.
- Pulver, A., Allik, J., Pulkkinen, L., & Härmäläinen, M. (1995). A Big Five personality inventory in two non-Indo-European languages. *European Journal of Personality*, 9, 109-124. doi:10.1002/per.2410090205
- Realo, A., Allik, J., Verkasalo, M., Lönnqvist, J. E., Kwiatkowska, A., Kõõts, L., . . . Renge, V. (2009). Mechanisms of the national character stereotype: How people in six neighboring countries of Russia describe themselves and the typical Russian. *European Journal of Personality*, 23, 229-249. doi:10.1002/per.719
- Rentfrow, P. J. (2014). Geographical differences in personality. In P. J. Rentfrow (Ed.), *Geographical psychology: Exploring the interaction of environment and behavior* (pp. 115-137). Washington, DC: American Psychological Association.
- Rentfrow, P. J., Gosling, S. D., & Potter, J. (2008). A theory of the emergence, persistence, and expression of geographic variation in psychological characteristics. *Perspectives on Psychological Science*, 3, 339-369. doi:10.1111/j.1745-6924.2008.00084.x
- Rindermann, H. (2007). The g-factor of international cognitive ability comparisons: The homogeneity of results in PISA, TIMSS, PIRLS and IQ-tests across nations. *European Journal of Personality*, 21, 667-706. doi:10.1002/per.634
- Rossier, J., Dahourou, D., & McCrae, R. R. (2005). Structural and mean-level analyses of the five-factor model and locus of control: Further evidence from Africa. *Journal of Cross-Cultural Psychology*, 36, 227-246. doi:10.1177/0022022104272903
- Sanz, J., & García-Vera, M. P. (2009). New norms for the Spanish adaptation of the NEO Personality Inventory-Revised (NEO PI-R): Reliability and normative data in volunteers from the general population [Nuevos Baremos para la Adaptación Española del Inventario de Personalidad NEO Revisado (NEO PI-R): Fiabilidad y Datos Normativos en Voluntarios de la Población General]. *Cinica et Salud*, 20(2), 131-144. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=44256395&login.asp&site=ehost-live>
- Schaller, M., & Murray, D. R. (2008). Pathogens, personality, and culture: Disease prevalence predicts worldwide variability in sociosexuality, extraversion, and openness to experience. *Journal of Personality and Social Psychology*, 95, 212-221. doi:10.1037/0022-3514.95.1.212

- Schmitt, D. P., Allik, J., McCrae, R. R., Benet-Martinez, V., Alcalay, L., Ault, L., . . . Zupancic, A. (2007). The geographic distribution of big five personality traits: Patterns and profiles of human self-description across 56 nations. *Journal of Cross-Cultural Psychology*, 38, 173-212. doi:10.1177/0022022106297299
- Siuta, J. (2007). Inwentarz osobowości NEO-PI-R Paula T. Costy i Roberta McCrae. Aplikacja polska. Podręcznik [NEO Personality Inventory NEO-PI-R of Paul Costa and Robert McCrae. Polish version. Questionnaire]. Warszawa, Poland: Pracownia Testów Psychologicznych.
- Steel, G. D., Rinne, T., & Fairweather, J. (2012). Personality, nations, and innovation: Relationships between personality traits and national innovation scores. *Cross-Cultural Research*, 46, 3-30. doi:10.1177/1069397111409124
- Steel, P., & Ones, D. S. (2002). Personality and happiness: A national-level analysis. *Journal of Personality and Social Psychology*, 83, 767-781. doi:10.1037/0022-3514.83.3.767
- Terracciano, A., Abdel-Khalek, A. M., Adam, N., Adamovova, L., Ahn, C., Ahn, H. N., . . . McCrae, R. R. (2005). National character does not reflect mean personality trait levels in 49 cultures. *Science*, 310(5745), 96-100. doi:10.1126/science.1117199
- Terracciano, A., McCrae, R. R., Brant, L. J., & Costa, P. T., Jr. (2005). Hierarchical linear modeling analyses of the NEO-PI-R Scales in the Baltimore Longitudinal Study of Aging. *Psychology and Aging*, 20(3), 493-506. doi:10.1037/0882-7974.20.3.493
- Van Skotere, L., & Perepjolkina, V. (2011). Personības iezīmju piecu faktoru modeļa aptauju NEO-PI-R, NEO-FFI un NEO-FFI-R versijas latviešu valodā - to psihometriskie rādītāji [Measuring the five factors of personality: Psychometric properties of the Latvian versions of the NEO PI-R, NEO-FFI, and NEO-FFI-R]. *Latvijas Universitātes raksti. Psihologija*, 768, 57-78.
- Vazire, S. (2010). Who knows what about a person? The self-other knowledge asymmetry (SOKA) model. *Journal of Personality and Social Psychology*, 98, 281-300. doi:10.1037/a0017908
- Welzel, C. (2013). *Freedom rising: Human empowerment and the quest for emancipation*. New York, NY: Cambridge University Press.
- World Values Survey Association. (2014). *World Values Survey Wave 5 2005-2008 Official Aggregate v.20140429* (Aggregate File Producer). Madrid, Spain: Asep/JDS.
- Zecca, G., Verardi, S., Antonietti, J.-P., Dahourou, D., Adjahouisso, M., Ah-Kion, J., . . . Rossier, J. (2013). African cultures and the five-factor model of personality: Evidence for a specific pan-African structure and profile? *Journal of Cross-Cultural Psychology*, 44, 684-700. doi:10.1177/0022022112468943
- Žukauskiene, R., & Barkauskiene, R. (2006). Psychometric properties of the Lithuanian version of the NEO PI-R [Lietuviškosios NEO PI-R versijos psichometriniai rodikliai]. *Psichologija*, 3(10), 7-21.